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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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26890	7590	12/19/2003	EXAMINER	
JAMES M. STOVER NCR CORPORATION 1700 SOUTH PATTERSON BLVD, WHQ4 DAYTON, OH 45479			MAHMOUDI, HASSAN	
			ART UNIT	PAPER NUMBER
			2175	

DATE MAILED: 12/19/2003

11

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/728,852

Applicant(s)

WATSON ET AL.

Examiner

Tony Mahmoudi

Art Unit

2175

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 and 11-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 11-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DOV POPOVICI

SUPERVISORY PATENT EXAMINER
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Art Unit: 2175

DETAILED ACTION

Remarks

1. In view of the Appeal Brief filed on 22-September-2003, PROSECUTION IS HEREBY REOPENED. New grounds of rejection are set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

- (1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,
- (2) request reinstatement of the appeal.

If reinstatement of the appeal is requested, such request must be accompanied by a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130, 1.131 or 1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

2. Claims 1-9 and 11-31 are presently pending in the application.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2175

4. Claims 1-3 and 6-9, and 11-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wagner et al (U.S. Patent No. 6,532,517) in view of Kenner et al (U.S. Patent No. 5,956,716.)

As to claim 1, Wagner et al teaches a method (see column 1, lines 7-11), comprising:
receiving data to be stored in a database system (see column 2, lines 31-43) having plural data servers (see column 6, lines 1-8);
receiving information associated with at least one characteristic of the data (see column 5, lines 17-36, where “characteristics of the data” is read on “information about each data file such as: file name, file size, date modified, and first storage location”);
partitioning the data (see column 6, lines 49-58, where “partitioning the data” is read on “breaking the partition file”) for storage in the database system based on the characteristic associated with the data (see column 6, line 66 through column 7, line 12); and
storing the partitioned data in storage units associated with the data server (see column 7, lines 13-22); and
in response to a database query (see column 5, lines 38-40, where “query” is read on “user request”), selecting the data (see column 5, lines 47-51.)

Wagner et al does not teach selecting less than all the plural data servers based on the positioning of the data to reduce a number of data servers involved in processing the database query (although Wagner et al teaches that “the data storage system can determine which storage locations must be read to reconstruct the entire data file, even if the data file is fragmented over non-contiguous storage locations”, see column 5, lined 40-51.)

Kenner et al teaches a data delivery system (see Abstract), in which he teaches:

Art Unit: 2175

selecting less than all the plural data servers based on the positioning of the data to reduce a number of data servers involved in processing the database query (see column 5, lines 49-55, and see column 13, lines 41-49.)

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Wagner et al to include selecting less than all the plural data servers based on the positioning of the data to reduce a number of data servers involved in processing the database query.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Wagner et al by the teachings of Kenner et al, because selecting less than all the plural data servers based on the positioning of the data to reduce a number of data servers involved in processing the database query, would speed up the file/data retrieval process by reducing messaging that occurs over the high speed network; would result in reduction of the network traffic and would help avoid overloading servers and communications links, as taught by Kenner et al (see column 5, lines 49-64; and see column 13, lines 43-49.)

As to claim 2, Wagner et al as modified teaches wherein receiving the information comprises receiving the information from a client system (see Wagner et al, column 5, lines 38-40, and see column 8, lines 20-24.)

As to claim 3, Wagner et al as modified teaches wherein receiving the information comprises receiving at least one of an average value of the data a uniform distribution of the

Art Unit: 2175

data, a minimum value of the data, and a maximum value of the data (see Wagner et al, column 5, lines 17-36, and see column 6, lines 41-48.)

As to claim 6, Wagner et al as modified teaches wherein partitioning the data for storage in the database system comprises dividing the data into buckets containing related data (see Wagner et al, column 6, lines 19-26, where “related data” is read on “relative locations”; and lines 49-58; and see column 7, lines 38-65, where “dividing the data” is read on “breaking the partition file”. Also see Kenner et al, column 6, lines 27-35, and column 13, lines 13-21.)

As to claim 7, Wagner et al as modified teaches wherein partitioning the data comprises organizing the data into related portions (see Wagner et al, column 2, lines 47-65.)

As to claim 8, Wagner et al as modified teaches wherein partitioning the data further comprises executing an algorithm to organize the data (see Wagner et al, column 8, lines 39-51, where “algorithm” is read on “software routine”, and see Kenner et al, column 10, lines 40-57.)

As to claim 9, Wagner et al as modified teaches wherein storing the partitioned data in the database system comprises storing the partitioned data in a relational database system (see Kenner et al, column 13, lines 10-13.)

Art Unit: 2175

As to claim 11, Wagner et al teaches a system (see Abstract), comprising:

a database (see column 2, lines 31-36, where a “database” is read on “data storage system”);

a network interface (see column 3, lines 12-20, and see column 7, line 66 through column 7, line 10);

plural storage modules (see column 4, lines 32-40) and data servers (see column 6, lines 1-8);

a database controller (see Abstract) coupled to the database (see column 4, lines 22-23), wherein the database controller is adapted to receive partitioning information and perform a partitioning task on data received through the network interface based on the partitioning information to partition the data into plural groups (see column 8, lines 20-51),

the database controller (see Abstract) adapted to further store the plural groups of the data partitioned by the partitioning task into the plural storage modules associated with corresponding plural data servers (see column 2, lines 43-46, and see column 4, lines 22-23)

the database controller adapted to select, in response to a database query, the data server (see column 8, lines 20-51.)

Wagner et al does not teach selecting less than all the plural data servers based on the partitioning information to reduce a number of data servers involved in processing the database query (although Wagner et al teaches that “the data storage system can determine which storage locations must be read to reconstruct the entire data file, even if the data file is fragmented over non-contiguous storage locations”, see column 5, lined 40-51.)

Kenner et al teaches a data delivery system (see Abstract), in which he teaches:

Art Unit: 2175

selecting less than all the plural data servers based on the partitioning information to reduce a number of data servers involved in processing the database query (see column 5, lines 49-55, and see column 13, lines 41-49.)

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Wagner et al to include selecting less than all the plural data servers based on the partitioning information to reduce a number of data servers involved in processing the database query.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Wagner et al by the teachings of Kenner et al, because selecting less than all the plural data servers based on the partitioning information to reduce a number of data servers involved in processing the database query, would speed up the file/data retrieval process by reducing messaging that occurs over the high speed network; would result in reduction of the network traffic and would help avoid overloading servers and communications links, as taught by Kenner et al (see column 5, lines 49-64; and see column 13, lines 43-49.)

As to claim 12, Wagner et al as modified teaches wherein the database is part of a parallel database system (see Kenner et al, column 27, lines 33-43, and see column 31, lines 43-53.)

As to claim 13, Wagner et al as modified teaches wherein the database (see Wagner et al, column 2, lines 31-36, where a “database” is read on “data storage system”) is a relational database (see Kenner et al, column 13, lines 10-13.)

As to claim 14, Wagner et al as modified teaches wherein the database controller (see Wagner et al, column 4, lines 22-23) comprises:

a query coordinator coupled to the network interface, the query coordinator to receive the database query from the network interface (see Wagner et al, column 5, lines 38-51, where “query” is read on “user request”);

a partitioner (see Wagner et al, column 8, lines 52-54, where “partitioner” is read on “formatter”) to partition data (see Wagner et al, column 7, lines 38-65, where “partition data” is read on “breaking the partition file”) and perform selecting of less than all the plural data servers (see Wagner et al, column 5, lines 40-51, and see Kenner et al, column 5, lines 49-55, and see column 13, lines 41-49); and

a partitioner data storage coupled to the partitioner, the partitioner data storage to store the partitioning information (see Wagner et al, column 7, lines 16-21, and see column 8, lines 20-51) associated with at least one characteristic of the data to enable the partitioner to partition data (see Wagner et al, column 5, lines 17-36, where “characteristics of the data” is read on “information about each data file such as: file name, file size, date modified, and first storage location”.)

As to claim 15, Wagner et al as modified teaches wherein the partitioner is capable of executing an algorithm, based on the stored partitioning information, for partitioning the data (see Wagner et al, column 8, lines 39-51, where “algorithm” is read on “software routine”, and see Kenner et al, column 10, lines 40-57.)

Art Unit: 2175

As to claim 16, Wagner et al as modified teaches wherein the plural data servers are adapted to store and access partitioned data in the database (see Wagner et al, column 6, lines 1-16.)

As to claim 17, Wagner et al as modified teaches the system further comprising a client system (see Wagner et al, column 5, lines 38-40, and see column 8, lines 20-24), wherein the client system sends data to the database through the network interface (see Wagner et al, column 3, lines 12-20, and see column 7, line 66 through column 7, line 10.)

As to claim 18, Wagner et al as modified teaches wherein the client system is adapted to further send the partitioning information to be used by the database controller to partition the data (see Wagner et al, column 8, lines 39-51.)

As to claim 19, Wagner et al teaches an article (see Abstract, where “article” is read on “data conveyance system”) comprising one or more storage media (see column 2, lines 2, and see column 6, lines 1-8) containing instructions that when executed (see column 9, line 66 through column 10, line 67) cause a device to:

For the teachings of the remaining steps of this claim, the applicant is kindly directed to remarks and discussions made in claim 1 above.

Art Unit: 2175

As to claim 20, Wagner et al as modified teaches wherein the instructions when executed (see Wagner et al, column 9, line 66 through column 10, line 67) cause the device to execute an algorithm to partition the data (see Wagner et al, column 8, lines 39-51, where “algorithm” is read on “software routine”).)

As to claim 21, Wagner et al as modified teaches wherein the instructions when executed (see Wagner et al, column 9, line 66 through column 10, line 67) cause the device to divide the data into segments containing related data (see Wagner et al, column 7, lines 38-65, where “dividing the data” is read on “breaking the partition file”).)

As to claim 22, Wagner et al as modified teaches wherein receiving the information comprises receiving organizational information (see Wagner et al, column 2, lines 47-65, and see column 10, lines 45-67), and wherein selecting less than all the plural data servers is based on the organizational information (see Wagner et al, column 5, lined 40-51, and see Kenner et al, column 5, lines 49-55, and see column 13, lines 41-49.)

As to claim 23, Wagner et al as modified teaches wherein selecting less than all the plural data servers is based on the organizational information (see Wagner et al, column 5, lined 40-51, and see Kenner et al, column 5, lines 49-55, and see column 13, lines 41-49) and a characteristic of data requested by the database query (see Wagner et al, column 5, lines 17-36, where “characteristics of the data” is read on “information about each data file such as: file name, file size, date modified, and first storage location”).)

As to claim 24, Wagner et al as modified teaches the method further comprising:
retrieving search results obtained by the selected data servers (see Wagner et al, column 5, lines 40-42);
determining whether the search results are satisfactory (see Wagner et al, column 5, lines 43-47); and
selecting at least one more data server to process the database query if the search results are not satisfactory (see Wagner et al, column 5, lines 47-51.)

As to claim 25, Wagner et al as modified teaches wherein partitioning the data comprises partitioning the data into logical groups (see Wagner et al, column 4, lines 35-40, and see column 5, lines 4-16.)

As to claim 26, Wagner et al as modified teaches the method further comprising storing the information by a partitioner (see Wagner et al, column 8, lines 52-54, where “partitioner” is read on “formatter”), wherein selecting less than all the data select is performed at least in part by the partitioner (see Wagner et al, column 5, lined 40-51, and see Kenner et al, column 5, lines 49-55, and see column 13, lines 41-49.)

As to claim 27, Wagner et al as modified teaches the database controller (see Wagner et al, column 4, lines 22-23) to select less than all the plural data servers based on the

Art Unit: 2175

partitioning information and a characteristic of data requested by the database query (see Wagner et al, column 5, lined 40-51.)

As to claim 28, Wagner et al as modified teaches wherein the selected data servers are adapted to retrieve search results in response to the database query (see Wagner et al, column 5, lines 40-42), and the database controller is adapted to determine whether the search results are satisfactory (see Wagner et al, column 5, lines 43-47) and to select at least one more data server to process the database query if the search results are not satisfactory (see Wagner et al, column 5, lines 47-51.)

As to claim 29, Wagner et al as modified teaches wherein the instructions when executed (see Wagner et al, column 9, line 66 through column 10, line 67) cause the device to receive information comprising partitioning information (see Wagner et al, column 5, lines 27-36.)

As to claim 30, Wagner et al as modified teaches wherein the instructions when executed (see Wagner et al, column 9, line 66 through column 10, line 67) cause the device to select less than all the plural data servers based on the partitioning information and a characteristic of data requested by the database query (see Wagner et al, column 5, lined 40-51, and see Kenner et al, column 5, lines 49-55, and see column 13, lines 41-49.)

As to claim 31, Wagner et al as modified teaches wherein the instructions when executed (see Wagner et al, column 9, line 66 through column 10, line 67) cause the device to:

Art Unit: 2175

retrieve search results obtained by the selected data servers (see Wagner et al, column 5, lines 40-42);

determine whether the search results are satisfactory (see Wagner et al, column 5, lines 43-47); and

select at least one more data server to process the database query if the search results are not satisfactory (see Wagner et al, column 5, lines 47-51.)

5. Claims 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wagner et al (U.S. Patent No. 6,532,517) in view of Kenner et al (U.S. Patent No. 5,956,716) as applied to claims 1-3, 6-9, and 11-31 above, and further in view of Seymour et al (U.S. Patent No. 6,141,454.)

As to claim 4, Wagner et al as modified teaches partitioning the data (see Wagner et al, column 6, lines 49-58, where “partitioning the data” is read on “breaking the partition file”).

Wagner et al as modified still does not teach wherein partitioning the data comprises defining straight-line segments based on at least one of the average value of the data, the uniform distribution of the data, the minimum value of the data, and the maximum value of the data.

Seymour et al teaches data compression techniques (see Abstract), in which he teaches wherein partitioning the data comprises defining straight-line segments based on at least one of the average value of the data, the uniform distribution of the data, the minimum value of

Art Unit: 2175

the data, and the maximum value of the data (see Abstract, and see column 8, lines 25-31, column 9, lines 39-60, and see column 13, lines 33-45.)

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Wagner et al as modified, to include wherein partitioning the data comprises defining straight-line segments based on at least one of the average value of the data, the uniform distribution of the data, the minimum value of the data, and the maximum value of the data.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Wagner et al as modified, by the teaching of Seymour et al, because including wherein partitioning the data comprises defining straight-line segments based on at least one of the average value of the data, the uniform distribution of the data, the minimum value of the data, and the maximum value of the data, would enable the system to define/approximate the location values of data based on where the major portions of data reside.

As to claim 5, Wagner as modified teaches wherein partitioning the data further comprises defining breakpoints to provide the straight-line segments (see Seymour et al, column 9, lines 48-52, and see column 10, lines 3-11.)

Art Unit: 2175

Response to Arguments

6. Applicant's arguments made in the Appeal Brief filed on 22-September-2003 with respect to the rejected claims in view of the cited references have been fully considered but they are moot in view of the new grounds for rejection.


Conclusion

7. Any inquiries concerning this communication or earlier communications from the examiner should be directed to Tony Mahmoudi whose telephone number is (703) 305-4887. The examiner can normally be reached on Mondays-Fridays from 08:00 am to 04:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dov Popovici, can be reached at (703) 305-3830.

tm

December 8, 2003


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